Appendix C

Sample Safety Qualification Checklists

This appendix provides sample safety qualification checklists designed to be used by the commander as a guide to develop a program that fully qualifies personnel involved in firing.

QUALIFICATION TASKS

TASK 1

C-1. Initialize AFCS.

Conditions

C-2. Direct the establishment of digital and voice communications between the M109A6 howitzer and the POC and/or a paired M109A6 howitzer section.

Performance Measures

Performance Measures	Go	No Go
1. Ensure the left drive sprocket is within 1 meter of survey control point.		
2. Ensure the tube is in travel lock and turret is locked.		
3. Ensure M93 chronograph antenna is mounted and connected.		
4. Ensure PLGR is connected.		
5. Ensure vehicle master switch is "ON"; powers up radios.		
6. Turn on DU and observe system status (Explains OK, degraded, or out subsystems).		
7. Enter NET ACCESS.		
8. Enter NET ADDRESS.		
9. Enter DATE TIME GROUP and conduct FM voice radio check with POC.		
10. Get initialization data from POC BCS.		
11. Select NAV RESTART.		
12. Enter EASTING.		
13. Enter NORTHING.		
14. Enter ALTITUDE.		
15. Enter GRID ZONE.		
16. Enter SPHEROID.		
17. Enter AMMO INVENTORY (shell, propellants, and fuzes).		

Performance Measures Continued	Go	No Go
18. Enter PROPELLANT TEMPERATURE.		
19. Enter MVV ROUNDS		
20. Enter TOT RESPONSE TIME.		
21. Enter LOAD ELEVATION.		
22. Enter SECTOR OF FIRE.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 2

C-3. Navigate from one point to another using the AFCS.

Conditions

C-4. M109A6 howitzer with an operational AFCS, operating during day and night, digital communications with the POC, a move order, section personnel, and TM 9-2350-314-10.

Performance Measures

Performance Measures	Go	No Go
Manually Entered:		
1. Plot destination on map.		
2. Plan route of march on map and inform ATC.		
3. Select manual move order menu.		
4. Enter destination (easting, northing, altitude, grid zone, and spheroid).		
5. Manually input the sectors of fire that are provided by POC.		
6. Verify azimuth of fire (voice) with POC.		
7. Navigate howitzer to destination using navigation aid and map.		
8. If move orders are to a firing point, howitzers must be within 50 meters of destination.		
BCS Provided:		
1. Plot destination on map.		
2. Plan route of march on map and inform ATC.		
3. Navigate howitzer to destination.		
4. If move orders are to a firing point, howitzers must be within 50 meters of destination.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 3

C-5. Prepare a howitzer for firing with the AFCS.

Conditions

C-6. M109A6 howitzer in a firing position, a sector of fire and initialized AFCS, section personnel, and TM 9-2350-314-10.

Performance Measures

Performance Measures	Go	No Go
1. Orient the howitzer onto the general direction of the center of fire.		
2. Conduct prefire checks (see Task 4).		
3. Verify and record location.		
4. Verify direction (if required by TSOP).		
5. Press ARRIVED key on DU.		
6. Determine site data.		
7. Input min QE.		
8. Send piece status.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 4

C-7. Perform prefire checks.

Conditions

C-8. M109A6 in a firing area or point, conducting occupation procedures, day or night.

Performance Measures

Performance Measures	Go	No Go
1. Check tube- must be clean and dry with no visible damage or foreign matter present.		
2. Low voltage checks. Check battery generator indicator for low battery voltage.		
3. Breech Mechanism.		
a. Witness mark must align when breech is closed.		
b. Firing mechanism, block assembly, and firing pin must be serviceable.		
c. Primer vent must be clear.		
d. Breech operating handle is securely latched forward.		
4. Perform rammer reliability check.		
5. Recoil system.		
a. Check index pins (1/8 inch to 3/4 inch).		
b. Check recuperator locking nut and cotter pin.		
c. Check recoil locking nut.		
d. Check replenisher pressure gauge (17 - 24 pounds per square inch (psi)).		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 5

C-9. Conduct indirect fire missions using AFCS.

Conditions

C-10. M109A6 howitzer moving or emplaced at a firing area or point, an operational AFCS, digital communications with the POC, section equipment and personnel, TM 9-2350-314-10.

Performance Measures

Performance Measures	Go	No Go
1. Confirm receipt of fire mission.		
2. Turn on hydraulic control box.		
3. Turn on gun drive servos.		
4. Announce fire mission data (number) or rounds, shell, propellant, and fuze information.		
5. Press LOAD key and load ammunition.		
6. Press LAY key. Verify that LAY light on DU is lit, actual and command deflection and quadrant are within tolerance (+/- 0.9 mils), and the prompt WARNING THE TUBE IS NOT IN THE LAY POSITION is no longer displayed. (If it is a high angle mission the command to PRIME will be given before pressing the LAY key.)		
7. COS commands PRIME.		
8. COS commands HOOK UP.		
9. COS command FIRE.		
10. Verify expended ammunition.		
11. Turn off servos and hydraulics.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 6

C-11. Manually input data in the AFCS to lay a howitzer for deflection and quadrant.

Conditions

C-12. M109A6 has lost digital communications after being emplaced at a firing point.

Performance Measures

Performance Measures	Go	No Go
1. Select FIRE COMMANDS menu.		
2. Enter commanded deflection and quadrant.		
3. Press LOAD key to load ammunition.		
4. Press LAY key, lay tube on commanded deflection and quadrant on DU.		
5. Command end of mission using DU.		
6. Verify ammunition inventory.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 7

C-13. Operate/explain the components of the hydraulic system.

Conditions

C-14. M109A6 howitzer, occupation procedures completed and prepared to accept fire missions, section equipment and personnel, and TM 9-2350-314-10.

Performance Measures

Performance Measures	Go	No Go
1. Turn master switch to "ON".		
2. Set engine to run at 1000 - 1200 RPM.		
3. Ensure cooling fan switch is in automatic position.		
4. Ensure hydraulic warm-up switch is in the automatic position.		
5. Turn hydraulic power switch to "ON".		
6. Check hydraulic pressure gauge for correct operating pressure (shuts system down if incorrect pressure reading).		
7. Select proper operation of controls as directed by the instructor.		
8. Use override switch to return to within traverse limits.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____

TASK 8

C-15. Perform AFCS confidence test.

Conditions

C-16. M109A6 howitzer with initialized AFCS, a movement order to a survey control point, and a survey control point with known data to a distant aiming point.

Performance Measures

Performance Measures	Go	No Go
1. Position howitzer within 1 meter of survey control point toward distant aiming point.		
2. With the STEER TO FIRE AREA screen displayed read and record AFCS position data under POSN (easting, northing and altitude) and the range to destination (RNG) in the upper right corner of the screen. Subtract the POSN altitude from the DESTN altitude. Compare the data obtained with the following tolerances: RNG 26 meters or less Altitude Difference +/- 26 meters Note: If the data is within tolerance but not exact, do a position navigation update.		
3. Press ARRIVED key.		
4. Check boresight of the pantel with M140 alignment device.		
5. Using the azimuth deflection knob align the vertical hair line of the pantel on the distant aiming point, level the pitch and cross level bubbles, and check alignment.		
6. Rotate counter reset knob on pantel until 3200 appears on the reset counter.		
7. Remove tube from the stowed position, install breech boresighting disc, and muzzle cross hairs on tube.		
8. Using the boresighting disc, align the tube on the distant aiming point. Note: Primer vent hole may be used if boresighting disc is missing.		
9. Level pitch and cross level bubbles on pantel mount and realign vertical hair line on pantel using the azimuth deflection knob.		
10. Using the auxiliary quadrant, level the elevation vial.		
11. If fire mission screen is not already displayed select fire commands menu from the setup and information menu to display fire mission screen.		
12. Read the actual deflection and quadrant on the AFCS and compare them with the deflection and quadrant obtained in steps 9 and 10. The tolerance between the readings should be +/- 2 mils. Note: Quadrant should also be checked with a pretested gunner's quadrant. Reading should compare to +/- 2 mils.		
13. Select display format from the setup and information menu.		
14. Change display from deflection to azimuth and return to the fire mission menu. Read the actual azimuth.		

Performance Measures Continued	Go	No Go
15. Compare the azimuth displayed on the AFCS with the measured azimuth to the distant aiming point. Azimuth should compare to +/- 2 mils.		

If the soldier scored "no go", tell him and write a brief explanation in the space below.

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Check one: Go_____ No Go_____ Instructor's Initials_____